

## CLAIMS

1. A user interface system comprising:

a directional input unit having an operating member, and  
5 operable to receive at a point in time an input specifying one  
of at least three different directions; in response to a user  
operation of touching the operating member;

a calculating unit operable to calculate an amount of change  
from a first direction to a second direction, when the directional  
10 input unit receives an input specifying the first direction  
followed within a predetermined time period by an input  
specifying the second direction;

a judging unit operable to judge whether the calculated  
amount of change falls within a predetermined range; and

15 a processing unit operable to perform a first process  
associated with each of the first and second directions when  
the judging unit judges negatively, and perform a second process  
associated with the amount of change when the judging unit judges  
affirmatively.

20 2. The user interface system according to Claim 1, wherein

when the input specifying the first direction is followed  
within the predetermined time period by two or more inputs  
specifying directions different from the first direction, the  
25 calculating unit calculates the amount of change from the first  
to second directions which are specified respectively by the  
inputs received first and last within the predetermined time  
period.

3. The user interface system according to Claim 1, wherein  
one of the directions available for an input to the operating  
member is a reference direction and each of the directions is  
5 expressed by an angle formed with the reference direction, and  
the calculating unit calculates an amount of angular change  
from a first angle expressing the first direction to a second  
angle expressing the second direction, when the directional input  
unit receives the input specifying the first direction followed  
10 within the predetermined time period by the input specifying  
the second direction.

4. The user interface system according to Claim 3, wherein  
each of the directions available for an input to the  
15 operating member is expressed by  $360^\circ$  with respect to the  
reference direction at  $0^\circ$ , and  
the predetermined range is  $10^\circ < |\text{amount of angular change}|$   
<  $160^\circ$ .

20 5. The user interface system according to Claim 1, further  
comprising:

a determining unit operable to determine, when the judging  
unit judges affirmatively and a process most recently performed  
is a first process, a second process as a candidate process to  
25 be performed; and

a counting unit operable to keep count of how many times  
the determination is made, wherein

when the determination count reaches a predetermined

number, the processing unit performs second processes associated with the respective amounts of angular change having been calculated for making the determination.

- 5 6. The user interface system according to Claim 1, further comprising:

a determining unit operable to determine, when the judging unit judges negatively and when a process most recently performed is a second process, a first process as a candidate process to  
10 be performed; and

a counting unit operable to keep count of how many times the determination is made, wherein

when the determination count reaches a predetermined number, the processing unit performs first processes associated  
15 with the respective directions having been received for making the determination.

7. The user interface system according to Claim 1, wherein

when the input specifying the first direction is followed  
20 within the predetermined time period by no input specifying another direction, the processing unit performs a first process associated with the first direction.

8. The user interface system according to Claim 1, wherein

25 the directional input unit includes:

a resistive layer formed on an insulating substrate;

a conducting member formed on a planar substrate facing the resistive layer across a predetermined insulating gap; and

the operating member used to bring the resistive layer partially into contact with the conducting member, wherein in response to a user operation of touching the operating member under a condition where a predetermined voltage is applied to the resistive layer, the insulating substrate and the planar substrate are brought partially into contact, so that an input specifying a direction is received based on a voltage conducted as a result of the partial contact.

9. The user interface system according to Claim 1, further comprising:

a display unit operable to display (i) a group of options in an annular array, and (ii) a selected position movable to any of the options to indicate that the option is currently focused or selected; and

a storage unit operable to store a first table and a second table, the first table associating the individual directions with the options, and the second table associating the individual amounts of change with movement directions and amounts of the selected position, wherein

when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process, so that an option associated with each direction input to the directional input unit is focused or selected, and

when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that the selected position is moved in a movement direction and amount associated with the calculated amount of

change.

10. The user interface system according to Claim 1, further comprising:

5       a display unit operable to display a plurality of files and folders in an annular array; and

          a storage unit operable to store a first table and a second table, the first table associating the individual directions with the files, and the second table associating the individual  
10       amounts of change with movement directions and amounts of a selected one of the files, wherein

          when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process, so that a file associated with each direction input  
15       to the directional input unit is selected, and

          when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that a currently selected file is moved in a movement direction and amount associated with the calculated amount of  
20       change and placed into a folder if the selected file is moved to where the folder is located.

11. The user interface system according to Claim 1, further comprising:

25       a display unit operable to display an image of a dial on which a group of letters are arranged in an annular array; and

          a storage unit operable to store a table associating the individual amounts of change with rotational directions and

amounts of the dial, wherein

when the judging unit judges negatively, the processing unit performs the first process, so that each input to the directional input unit is discarded and causes no text input,  
5 and

when the judging unit judges affirmatively, the processing unit refers to the table to accordingly perform the second process, so that the dial is rotated in a rotational direction and amount associated with the calculated amount of change and that text  
10 of a letter placed at a predetermined position as a result of the rotation is input.

12. The user interface system according to Claim 1, further comprising:

15 a playback unit operable to play content with audio; and  
a storage unit operable to store a first table and a second table, the first table associating the individual directions with processes to be performed, and the second table associating the individual amounts of change with levels of audio output  
20 of content targeted for playback, wherein

when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process associated with each direction input to the directional input unit, and

25 when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that the content is played with audio output at a level associated with the calculated amount of change.

13. The user interface system according to Claim 1, further comprising:

a playback unit operable to play content; and

5 a storage unit operable to store a first table and a second table, the first table associating the individual directions with processes to be performed, and the second table associating the individual amounts of change with speeds at which content targeted for playback is fast-forwarded or rewound, wherein

10 when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process associated with each direction input to the directional input unit, and

when the judging unit judges affirmatively, the processing  
15 unit refers to the second table to accordingly perform the second process, so that the content is fast-forwarded or rewound at a speed associated with the calculated amount of change.

14. The user interface system according to Claim 1, further  
20 comprising:

a display unit operable to display (i) a chart composed of options in an array and (ii) a selected position movable to any of the options to indicate the option is currently focused or selected; and

25 a storage unit operable to store a first table and a second table, the first table associating the individual directions with movement directions of the selected position, and the second table associating the individual amounts of change with scaling

factors by which a displayed part of the chart is scaled up or down with the selected position as a center, wherein

when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first  
5 process, so that the selected position is moved in a movement direction associated with each direction input to the directional input unit, and

when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second  
10 process, so that a displayed part of the chart is scaled up or down by a scaling factor associated with the calculated amount of change.

15 15. The user interface system according to Claim 1, further comprising:

a display unit operable to display a map and a cursor; and

a storage unit operable to store a first table and a second table, the first table associating the individual directions with movement directions of the cursor on the map, and the second  
20 table associating the individual amounts of change with scaling factors by which a displayed part of the map is scaled up or down with the cursor as a center, wherein

when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first  
25 process, so that the cursor is moved in a movement direction associated with each direction input to the directional input unit, and

when the judging unit judges affirmatively, the processing



unit refers to the second table to accordingly perform the second process, so that a displayed part of the map is scaled up or down by a scaling factor associated with the calculated amount of change.

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16. The user interface system according to Claim 1, further comprising:

a managing unit operable to rank and manage a plurality of options;

10 a display unit operable to display a group of options in a spiral array, the group including a predetermined number of options of consecutive ranks out of the plurality of options managed by the managing unit; and

15 a storage unit operable to store a first table and a second table, the first table associating the individual directions with the currently displayed options, and the second table associating the individual amounts of change with numbers by which a ranking range of the currently displayed options are to be shifted, wherein

20 when the judging unit judges negatively, the processing unit refers to the first table to perform the first process, so that an option associated with each direction input to the directional input unit is focused or selected, and

25 when the judging unit judges affirmatively, the processing unit refers to the second table to perform the second process, so that another group of options is displayed, said another group including consecutive options within a ranking range shifted from the current ranking range by a number associated with the

calculated amount of change.

17. The user interface system according to Claim 1, further comprising:

5        a display unit operable to display an image of a vinyl record;  
      a storage unit operable to store a first table and a second table, the first table associating the individual directions with sounds, and the second table associating the individual amounts of change with scratch sounds; and

10        an output unit operable to produce audio output, wherein  
      when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first processes, so that the output unit produces a sound associated with each direction input to the directional input unit, and

15        when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that the output unit produces a scratch sound associated with the calculated amount of change.

20    18. A program for use by a computer having an operating member and a directional input unit that is operable to receive at a point in time an input specifying one of at least three directions, the program comprising code operable to cause the computer to perform:

25        a calculating step of calculating an amount of change from a first direction to a second direction, when the directional input unit receives an input specifying the first direction followed within a predetermined time period by an input

specifying the second direction;

a judging step of judging whether the calculated amount of change falls within a predetermined range; and

5 a step of performing a first process associated with each of the first and second directions when the judging unit judges negatively, and performing a second process associated with the amount of change when the judging unit judges affirmatively.

10 19. A computer-readable medium storing a program for use by a computer having an operating member and a directional input unit that is operable to receive at a point in time an input specifying one of at least three directions, the program comprising code operable to cause the computer to perform:

15 a calculating step of calculating an amount of change from a first direction to a second direction, when the directional input unit receives an input specifying the first direction followed within a predetermined time period by an input specifying the second direction;

20 a judging step of judging whether the calculated amount of change falls within a predetermined range; and

a step of performing a first process associated with each of the first and second directions when the judging unit judges negatively, and performing a second process associated with the amount of change when the judging unit judges affirmatively.

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